WHAT IS CLAIMED IS:

1.   A method for counting print ridges in a captured print image frame, comprising the steps of:

(A)   traversing a pixel path through the captured print image frame;

(B)   determining a hysteresis band for the pixel path;

(C)   counting a number of crossings of the determined hysteresis band while traversing the pixel path; and

(D)   determining a number of print ridges based on the counted number of hysteresis band crossings.

2.   The method of claim 1, wherein the hysteresis band is defined by a hysteresis band first edge value and a hysteresis band second edge value, wherein step (B) comprises the steps of:

(1)   measuring a first ridge pixel value peak for the pixel path;

(2)   measuring a first valley pixel value peak for the pixel path;

(3)   selecting a hysteresis band center pixel value between the first ridge pixel value peak and the first valley pixel value peak;

(4)   calculating the hysteresis band first edge value by adding a delta value to the selected hysteresis band center pixel value; and

(5)   calculating the hysteresis band second edge value by subtracting the delta value from the selected hysteresis band center pixel value.

3.   The method of claim 2, wherein step (3) comprises the step of:

calculating an average pixel value of the first ridge pixel value peak and the first valley pixel value peak; and

setting the hysteresis band center pixel value to the calculated average pixel value.

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4.   The method of claim 2, further comprising the step of:

calculating the delta value according to the following equation

delta value = |(first valley pixel value peak - first ridge pixel value peak)|/6.

5.   The method of claim 2, wherein step (A) comprises the step of:

. detecting pixel values sequentially along the pixel path.

6.   The method of claim 5, wherein step (C) comprises the steps of:

detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band first edge value to the hysteresis band second edge value; and

detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band second edge value to the hysteresis band first edge value.

7.   The method of claim 1, wherein step (D) comprises the step of:

dividing the counted number of hysteresis band crossings by two to determine the number of print ridges.

8.   The method of claim 1, further comprising the steps of:

    (E)   traversing a second pixel path across the captured print image frame; and

    (F)   repeating steps (C) and (D) using the second pixel path.

9.   The method of claim 1, further comprising the steps of:

    (E)   determining a second hysteresis band;

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(F)   traversing a second pixel path across the captured print image frame; and

(G)   repeating steps (C) and (D) using the second determined hysteresis band and the second pixel path.

10.   The method of claim 1, further comprising the steps of:

(E)   determining a second hysteresis band;

(F)   traversing the pixel path across the captured print image frame a second time; and

(G)   repeating steps (C) and (D) using the second determined hysteresis band and the second traversal of the pixel path.

11.   A method for counting fingerprint ridges, comprising the steps of:

(A)   identifying a region of interest in a stored fingerprint image frame;

(B)   determining a pixel path through the region of interest;

(C)   traversing the determined pixel path;

(D)   determining a hysteresis band for the determined pixel path;

(E)   counting a number of crossings of the determined hysteresis band while traversing the determined pixel path;

(F)   determining a number of fingerprint ridges based on the counted number of hysteresis band crossings; and

(G)   storing the number of fingerprint ridges determined in step (F).

12.   The method of claim 11, further comprising the step of:

(H)   capturing a fingerprint image; and

(I)   storing the captured fingerprint image to be accessed as the stored fingerprint image frame.

13.   The method of claim 12, further comprising the step of:

(J)   evaluating the stored number of fingerprint ridges to determine a quality of the captured fingerprint image.

14.   The method of claim 11, further comprising the step of:

(H)   repeating steps (B)-(G) at least one additional time.

15.   The method of claim 11, further comprising the step of:

(H)   evaluating the stored number of fingerprint ridges to determine a quality of the stored fingerprint image frame.

16.   The method of claim 11, wherein the hysteresis band is defined by a hysteresis band first edge value and a hysteresis band second edge value, wherein step (D) comprises the steps of:

(1)   measuring a first ridge pixel value peak for the determined pixel path;

(2)   measuring a first valley pixel value peak for the determined pixel path;

(3)   selecting a hysteresis band center pixel value between the first ridge pixel value peak and the first valley pixel value peak;

(4)   calculating the hysteresis band first edge value by adding a delta value to the selected hysteresis band center pixel value; and

(5)   calculating the hysteresis band second edge value by subtracting the delta value from the selected hysteresis band center pixel value.

17.   The method of claim 16, wherein step (3) comprises the step of:

calculating an average pixel value of the first ridge pixel value peak and the first valley pixel value peak; and

setting the hysteresis band center pixel value to the calculated average pixel value.

18.   The method of claim 16, further comprising the step of:

calculating the delta value according to the following equation

delta value = |(first valley pixel value peak - first ridge pixel value peak)|/6.

19.   The method of claim 16, wherein step (C) comprises the step of:

detecting pixel values sequentially along the determined pixel path.

20.   The method of claim 19, wherein step (E) comprises the steps of:

detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band first edge value to the hysteresis band second edge value; and

detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band second edge value to the hysteresis band first edge value.

21.   The method of claim 11, wherein step (F) comprises the step of:

dividing the counted number of hysteresis band crossings by two to determine the number of fingerprint ridges.

22.   A system for counting fingerprint ridges in a captured fingerprint image frame, comprising:

a ridge counter module that includes

means for traversing a pixel path through the captured fingerprint image frame,

means for determining a hysteresis band for the pixel path,

means for counting a number of crossings of the determined hysteresis band while traversing the pixel path, and

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means for determining a number of fingerprint ridges based on the counted number of hysteresis band crossings.

23.   The system of claim 22, wherein the hysteresis band is defined by a hysteresis band first edge value and a hysteresis band second edge value, said hysteresis determining means comprises:

means for measuring a first ridge pixel value peak for the pixel path;

means for measuring a first valley pixel value peak for the pixel path;

means for selecting a hysteresis band center pixel value between the first ridge pixel value peak and the first valley pixel value peak;

means for calculating the hysteresis band first edge value by adding a delta value to the selected hysteresis band center pixel value; and

means for calculating the hysteresis band second edge value by subtracting the delta value from the selected hysteresis band center pixel value.

24.   The system of claim 23, wherein said means for selecting a hysteresis band center pixel value comprises:

means for calculating an average pixel value of the first ridge pixel value peak and the first valley pixel value peak; and

means for setting the hysteresis band center pixel value to the calculated average pixel value.

25.   The system of claim 23, further comprising:

means for calculating the delta value according to the following equation

delta value = |(first valley pixel value peak - first ridge pixel value peak)|/6.

26. The system of claim 23, wherein said means for traversing a pixel path comprises:

 means for detecting pixel values sequentially along the pixel path.

27. The system of claim 26, wherein said means for counting a number of crossings comprises:

 means for detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band first edge value to the hysteresis band second edge value; and

 means for detecting a hysteresis band crossing when sequentially detected pixel values range from the hysteresis band second edge value to the hysteresis band first edge value.

28. The system of claim 22, wherein said means for determining a number of fingerprint ridges comprises:

 means for dividing the counted number of hysteresis band crossings by two to determine the number of fingerprint ridges.

29. The system of claim 22, further comprising:

 a camera that captures a fingerprint image and outputs said captured fingerprint image frame.

30. The system of claim 29, further comprising:

 a memory that stores said captured fingerprint image frame, and is accessible by said ridge counter module.

31. The system of claim 29, further comprising:

 a platen that has a finger application area.

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32.   The system of claim 31, further comprising:

an illumination source that provides light to illuminate said finger application area to produce said fingerprint image.

33.   The system of claim 32, further comprising:

an optical system that directs said light to said camera.

34.   The system of claim 31, further comprising:

a controller that includes said ridge counter module and controls said illumination source and said camera.